

FISH AND CRUSTACEAN RESPONSE SURFACES TO ENVIRONMENTAL GRADIENTS IN THE WESTERSCHELDE ESTUARY

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The probability of occurrence of eleven fish and three crustacean species in the Westerschelde as a response to several environmental variables is predicted. Single logistic regression provides good descriptions of the occurrence along one environmental variable, which is related to the maximum likelihood of presence in the field. Multiple (fractional polygonal and factorial) logistic regressions give insight into the relative importance of each environmental variable. For all 14 species the predictions were relatively successful (60 to 90 percent correctly predicted) by combining data on salinity, temperature, turbidity and/or oxygen. However, these response surfaces should not be interpreted as physiological limits but as actual distribution patterns as a function of these abiotic variables. The addition of other variables such as current velocity, chlorophyll a, SPM or mysid density did not improve the predictions. The models are cross-validated internally and evaluated with a limited data set from the adjacent Oosterschelde.